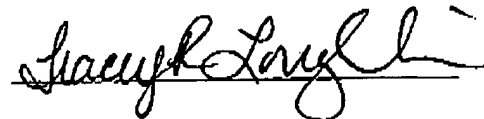


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Date of Transmission: January 30, 2007  
Type of Document(s): - Reply Brief (5 pages)  
Serial No.: 10/809,072  
Inventors: BULLIED et al.  
Title: Single Crystal Investment Cast Components and Methods of Making Same  
File Reference: EH-11132

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Tracey R. Loughlin

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10/809,072

**JAN 30 2007****IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Applicant	BULLIED et al.
Serial No.	10/809,072
Confirmation No.	6990
Filing Date	March 25, 2004
For	SINGLE CRYSTAL INVESTMENT CAST COMPONENTS AND METHODS OF MAKING SAME
Examiner	Kuang Y. Lin
Art Unit	1725

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Mail Stop Appeal Brief – Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**REPLY BRIEF  
PURSUANT TO 37 C.F.R. § 41.41(a)(1)**

Dear Sir:

This Reply Brief is being filed in response to the Examiner's Answer mailed November 30, 2006, setting a two month shortened statutory period for response that expires on January 30, 2007.

**PATENTABILITY OF INDEPENDENT CLAIMS 1, 29 AND 30**

Appellants' position with respect to the patentability of independent claims 1, 29 and 30 is well articulated in Appellants' Appeal Brief and will not be repeated here.

The Examiner argues that all the elements claimed by Applicants can be found in a combination of references. However, it is well settled law that merely identifying each individual claimed element in the prior art is insufficient to defeat patentability of the

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whole claimed invention. See *In re Rouffet*, 149 F.3d 1350, 1357-58, 47 U.S.P.Q.2d 1453, 1457-58 (Fed. Cir. 1998) (The combination of the references taught every element of the claimed invention, however without a motivation to combine, a rejection based on a *prima facie* case of obvious was held improper.). Instead, to establish obviousness based on a combination of elements disclosed in various prior art references, there must be some teaching, suggestion, or motivation to make the specific combination that was made by the applicant. See *In re Kahn*, 441 F.3d 977, 986, 78 U.S.P.Q.2d 1329, 1335 (Fed. Cir. 2006). One significant factor to be considered when determining obviousness based on a combination of references is whether any of the references "teach away" from the claimed invention. See *In re Gurley*, 27 F.3d 551, 553, 31 U.S.P.Q.2d 1130, 1131 (Fed. Cir. 1994) ("A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant.").

Turning first to Monte I and Monte II, the argument advanced by the Examiner is that the simple grain selector configurations of Monte I and Monte II can create a desired single crystal without needing a complex grain selector configuration, and that the improved simpler grain selector configurations of Monte I and Monte II do not render more complex grain selector configurations unobvious. However, the Examiner ignores everything else Monte I and Monte II have to say about why simpler grain selector configurations are desirable, or vice versa, why complex grain selector configurations are undesirable. This position is reversible error.

As pointed out in Appellants' Appeal Brief, each of Monte I and Monte II, when considered individually in their entirety, "teach away" from Applicants' claimed invention. Both Monte I and Monte II explicitly discourage the use of complex grain selector configurations (i.e., helix, three-dimensional bends, staircases, zigzags) by repeatedly noting how much less their simpler configurations cost, how much less complicated the tooling is for their simpler configurations, and how much scrap is produced with helical grain selectors. See Monte I, col. 1, lines 20-35 and Monte II, col. 1, lines 17-34.

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Without question, one of ordinary skill in the art reading Monte I and Monte II would be led in a direction divergent from the path taken by Applicants. One of ordinary skill in the art reading Monte I and Monte II would understand the position taken by Monte I and Monte II that it is better to use simpler grain selector configurations because it would be cheaper, would require less complicated tooling, and would result in less scrap. Thus, if one of ordinary skill in the art followed the teachings of Monte I or Monte II, he or she would arrive at a system significantly different from that claimed by Applicants.

Since Monte I and Monte II, when viewed in their respective entireties, teach away from the claimed invention, there would be no reason or motivation for one to combine either of Monte I or Monte II with either of Burd and/or Giamei.

Turning now to Burd, the argument advanced by the Examiner is that while Burd does not disclose a seed crystal, all the other references do, and as such, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. However, the Examiner ignores the fact that, even if all Applicants' claimed elements are taught in a combination of references, without a teaching, suggestion or motivation to combine those references to make the specific combination made by Applicants, the rejection is improper. This position is reversible error.

Burd never mentions seed crystals in any way. In fact, there is nothing in Burd to indicate that seed crystals even existed at the time of the Burd invention. As such, there can be no reason or motivation found in Burd for one to combine Burd with any system utilizing a seed crystal.

Turning now to Giamei, the argument advanced by the Examiner is that while Giamei does not disclose a grain selector support, all the other references do, and as such, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. However, the Examiner again ignores the fact that, even if all Applicants' claimed elements are taught in a combination of references, without a teaching, suggestion or motivation to combine those references to

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make the specific combination made by Applicants, the rejection is improper. This position is reversible error.

Giamei never mentions grain selector supports in any way. Even though embodiments of Giamei utilize complex grain selectors (See Giamei, FIGS. 7-8 and 10-11), none of them utilize a grain selector support of any kind. In fact, Giamei never even hints that there might be problems with grain selectors not being able to support their own weight, which is precisely the problem Applicants' addressed in their original application at paragraph [0029].

Furthermore, the Burd patent was actually cited during prosecution of the Giamei patent, so if the combination made by Applicants was so obvious, Giamei could have easily either included the grain selector supports in its original application, or filed a new application expanding the invention of Giamei to include the grain selector supports disclosed in Burd. The fact that Giamei did not do either one of those things indicates quite clearly that Applicants' invention is nonobvious.

As such, there can be no reason or motivation found in Giamei for one to combine Giamei with any system utilizing a grain selector support.

### **CONCLUSION**

For the reasons set forth herein and in Appellants' Appeal Brief, Appellants respectfully submit that there is no teaching, suggestion, or motivation to combine any of the cited references. As such, claims 1-12, 15, 17-30 and 33-35 are allowable over the cited and applied references. The Board is hereby requested to reverse the rejections of record and remand the case to the Primary Examiner in Art Unit 1725 for allowance and issuance of claims 1-12, 15, 17-30 and 33-35.

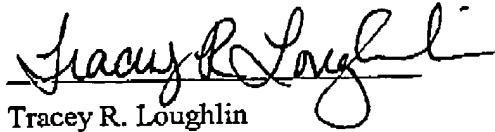
As this Reply Brief is being timely filed within two (2) months of November 30, 2006 (the date the Examiner's Answer was mailed), Appellants believe that there are no fees due for the filing of this Reply Brief. However, the Commissioner is authorized to charge any additional fees that may be due to **Deposit Account Number 21-0279, Order No. EH-11132.**

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Respectfully submitted,

Date: January 30, 2007



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